AMENDMENTS TO THE CLAIMS

LISTING OF CLAIMS

This listing of claims will replace all prior versions and listings of the claims in the application:

1. (withdrawn) A circuit for use on a mobile platform including a flight control system, a structure, an aerodynamic surface, and an actuator operatively coupled to the surface to control the surface, the circuit comprising:

a first input for accepting a command from the flight control system;

a second input for accepting a signal representative of a vibration of the structure;

a summing element in communication with the inputs to sum the signal and the command; and

a first output in communication with the actuator to control the actuator with the summed signal and command, the circuit adapted to be coupled to the actuator.

2. (withdrawn) The circuit according to Claim 1, further comprising a vibration sensor in communication with the second input to generate the signal, wherein the vibration is of the actuator.

3. (withdrawn) The circuit according to Claim 1, further comprising a third input for accepting a signal representative of a position of the actuator, a filter in communication

with the second and third inputs and to filter the vibration signal from the position signal, and a second output for outputting the filtered position signal.

4. (withdrawn) The circuit according to Claim 1, wherein the circuit is a microprocessor.

5. (withdrawn) The circuit according to Claim 1, wherein the circuit is analog.

6. (withdrawn) The circuit according to Claim 1, further comprising an inverter interposed between the first input and the summing element to invert the vibration signal, wherein the summing element sums the inverted vibration signal and the command.

7. (canceled)

8. (withdrawn) An actuator for use on a mobile platform including a flight control system, a structure, an aerodynamic surface, the actuator comprising:

a housing; and

a circuit coupled to the housing and including,

a first input for accepting a command from the flight control system;

a second input for accepting a signal representative of a vibration of the structure; and

a summing element in communication with the inputs to sum the signal and the command, the circuit to control the actuator with the summed signal and command, the actuator adapted to be operatively coupled to the surface to control the surface.

9. (withdrawn) The actuator according to Claim 8, further comprising a vibration sensor in communication with the second input to generate the vibration signal.

10. (withdrawn) The actuator according to Claim 8, further comprising a position sensor to generate a signal representative of the position of the actuator, a filter in communication with the position sensor and the vibration signal and to filter the vibration signal from the position signal, and an output for communicating the filtered position signal to the flight control system.

11. (withdrawn) The actuator according to Claim 8, wherein the circuit is a microprocessor.

12. (withdrawn) The actuator according to Claim 8, wherein the circuit is analog.

13 (canceled)

14. (withdrawn) A mobile platform comprising:

a flight control system generating commands;

a structure;

an aerodynamic surface;

an actuator operably coupled to the surface to control the surface,

a vibration sensor coupled to the structure and generating a signal representative of a vibration of the structure; and

a circuit coupled to the actuator and including,

a first input communicating with the flight control system to accept the commands;

a second input communicating with the vibration sensor to accept the vibration signal, and

a summing element communicating with the inputs to sum the signal and the command, the circuit controlling the actuator with the summed signal and command.

15. (withdrawn) The mobile platform according to Claim 14, further comprising a position sensor generating a signal representative of the position of the actuator, a filter in communication with the position sensor and the vibration sensor and filtering the vibration signal from the position signal, the filter including an output and communicating the filtered position signal to the flight control system via the output.

16. (withdrawn) The mobile platform according to Claim 14, further comprising a first power cable connected to the actuator and supplying power to the actuator, the actuator

including a second power cable communicating with the circuit and the first power cable.

17. (withdrawn) The mobile platform according to Claim 14, wherein the mobile platform is an aircraft.

18. (withdrawn) The mobile platform according to Claim 17, wherein the structure is a portion of a wing.

19. (withdrawn) The mobile platform according to Claim 17, wherein the structure is a housing of the actuator.

20. (withdrawn) The mobile platform according to Claim 17, wherein the surface is an aileron.

21. (withdrawn) The mobile platform according to Claim 20, wherein the actuator is at an outboard location of the aileron.

22-23. (canceled)

24. (currently amended) A method of damping vibrations [[on]] <u>of a member of</u> a mobile platform, wherein the mobile platform includes a control system, ~~a member,~~ a movable structure operatively connected to the member, and an actuator operatively

coupled to the structure to move the structure in response to a command signal generated by the control system, the method comprising:

providing a vibration sensor operatively connected to the member and adapted to sense a vibration of the member and generate a signal representative of the vibration;

~~inputting the vibration sensor signal to the control system as the vibration sensor senses vibration of the member;~~

superimposing the vibration signal on the command signal to generate a resultant driver signal;

operating the actuator with the resultant driver signal to cycle the structure ~~in a manner sufficient~~ to reduce ~~a level of~~ the vibration of the member.

25. (currently amended) The method according to Claim 24, further comprising inverting the vibration signal before the superimposing the vibration signal on the command signal[[;]] .

26. (currently amended) The method according to Claim 24, wherein the step of providing a vibration sensor operatively connected to the member ~~includes~~ comprises coupling the vibration sensor to the actuator.

27. (currently amended) The method according to Claim 24, further comprising: ~~sensing a position of the actuator, whereby a signal representative of the position is created.~~ filtering the vibration signal from a position signal representative of a position of the actuator; and

inputting the filtered position signal to the control system.

28-29. (canceled)

30. (withdrawn) A method comprising:

providing an aircraft with a wing wherein the wing has a control surface and an actuator coupled to the control surface for positioning the control surface in response to a command signal generated by a flight control system of the aircraft;

providing a sensor operatively coupled to the wing and adapted to sense a vibration of the wing and generate a signal representative of the vibration of the wing;

inputting the vibration sensor signal to the flight control system as the vibration sensor senses the vibration of the wing;

enabling the flight control system to generate a resultant driver signal comprising the command signal and the vibration signal; and

operating the actuator with the resultant driver signal to cycle the control surface in a manner sufficient to reduce a level of the vibration in the wing.

31. (withdrawn) The method claim 30 wherein the step of providing the vibration sensor comprises coupling the sensor to the actuator.

32. (withdrawn) The method claim 30 wherein the step of enabling the flight control system to generate the resultant driver signal comprises inverting the vibration sensor signal and superimposing the vibration sensor signal on the command signal.

33. (withdrawn) The method of claim 30 further comprising:

providing a position sensor adapted to sense a position of the actuator and generate a signal representative thereof;

inputting the position sensor signal to the flight control system; and

processing the position sensor signal with the vibration sensor signal in a manner sufficient to reduce a portion of the position sensor signal generated from cycling of the control surface.

34. (new) A method of damping vibrations of a member of a mobile platform including a control system, a movable structure operatively connected to the member, and an actuator operatively coupled to the structure to move the structure in response to a command signal from the control system, the method comprising:

generating a signal representative of vibration of the member, the generating performed using a vibration sensor operatively connected with the member;

combining the vibration signal with the command signal to generate a resultant driver signal configured to reduce the vibration of the member while driving the actuator; and

inputting the resultant driver signal to the actuator to move the structure.

35. (new) The method of Claim 34, further comprising inputting the vibration signal to a circuit that receives the command signal and drives the actuator.

36. (new) The method of Claim 34, performed without modifying the control system.

37. (new) The method of claim 34, wherein the mobile platform includes an aircraft.

38. (new) The method of Claim 37, wherein the member includes a wing and the structure includes an aileron.

39. (new) A method of damping vibrations of a member of a mobile platform including a control system, a movable structure operatively connected to the member, and an actuator operatively coupled to the structure to move the structure in response to a command signal from the control system, the method comprising:

sensing vibration of the member and generating a signal representative of the vibration, the sensing and generating performed using a vibration sensor operatively connected with the actuator;

inverting and superimposing the inverted vibration signal on the command signal to generate a resultant driver signal; and

inputting the resultant driver signal to the actuator to move the structure.